REMARKS

By this Amendment, claims 1, 40 and 44 have been amended and claims 2, 43, and 60-95 have been canceled. Thus, claims 1-59 remain pending in the present application.

No new issues are raised by the claim amendments presented in this Amendment. The amendments to independent claims merely incorporate the subject matter previously recited in dependent claims 2 and 43, respectively, and rearrange the respectively recited "contacting" steps to improve the form of the claims. Thus, all of the amended subject matter has been previously considered by the Examiner.

Claims 1-59 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Cho, U.S. Patent No. 6,096,592 or Kamiyama, U.S. Patent No. 5,254,505 in view of Miner et al. 6,114,258 and Schuegraf et al., U.S. Patent No. 5,624,865.

As amended, independent claims 1 and 40 recite the step of "forming an oxidation layer" on a dielectric layer "by contacting [the dielectric] layer with hydrogen, oxygen, and nitrous oxide gases," and wherein the dielectric layer has "a thickness not exceeding about 60 Angstroms." As demonstrated in Tables 1 and 2 on pages 12 and 13 of Applicants' specification, the combination of hydrogen, oxygen, and nitrous oxide gases to form the oxidation layer produces the unexpectedly synergistic effect of a dramatic reduction in leakage current than previously experienced in the prior art for dielectric layers not exceeding 60 Angstroms.

None of Kamiyama, Miner, nor Schuegraf teaches or suggests the combination of all three of the claimed gases to form an oxidation layer on the first conductive layer. Kamiyama and Miner teach different pairs of the claimed gases, but not all three together (*See, e.g.*, claims 1 and 2 in Kamiyama (H_2 and O_2, or H_2 and N_2O), and col. 8, lns. 16-26 in Miner (H_2 and O_2, or H_2 and N_2O)).

Cho discloses processing a dielectric layer having a thickness of approximately 400 Angstroms with a plasma whose source gas "may [] be a mixture which comprises one compound selected from the group consisting of H_2, NH_3 and PH_3 with at least one compound selected from the group consisting of Ar, N_2, O_2 and N_2O" (col. 4, lns. 32, 52-56). Cho's disclosure is simply a list of compounds containing each of the Applicants' claimed gases, and coincidentally coupled with the phrase "at least one," as is commonly found in many patent disclosures. Such a list of compounds fails to appreciate the enhanced effect obtained by the specific combination recited in Applicants' claims.

In In re Rouffet, the Federal Circuit overturned an obviousness rejection on the basis that although all the elements of the claimed invention were taught in the cited references, there was no motivation provided in the references to modify the prior art to arrive at the claimed invention. 149 F.3d 1350, 47 U.S.P.Q.2d 1453 (1998). Thus, absent specific motivation demonstrated in the cited references to use a combination of hydrogen, oxygen and nitrous oxide gases to form an oxidation layer on a dielectric layer having a thickness not exceeding 60 Angstroms, Applicants respectfully submit that the claimed invention is not rendered obvious by the cited combination of Cho or Kamiyama in view of Miner and Schuegraf.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

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Respectfully submitted,

By /S/

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Version With Markings to Show Changes Made

1. (Amended) A method of forming a capacitor on a substrate in a semiconductor device, comprising:

forming a first layer of a conductive material over said substrate;

forming a second layer of a dielectric over said first layer, said second layer having a thickness not exceeding about 60 Angstroms;

forming an oxidation layer over said second layer by contacting said second layer with hydrogen, oxygen and nitrous oxide gases [so as to form an oxidation layer over said second layer]; and

forming a third layer of conductive material over said [second] oxidation layer.

40. (Amended) A method of forming a capacitor structure in a semiconductor device, comprising:

depositing a layer of silicon nitride over a conductive layer formed over a substrate, said layer of silicon nitride having a thickness not exceeding about 60 Angstroms;

forming an oxidation layer over said silicon nitride by contacting said silicon nitride layer with hydrogen, oxygen and nitrous oxide gases [so as to form an oxidation layer over said silicon nitride layer].

44. (Amended) The method of claim [43] 40, wherein said silicon nitride layer is deposited to a thickness not exceeding about 50 Angstroms.